focus

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Iceland

Shortly after Hekla erupted for the first time in human history, back in the twelfth century, a fearful tale about this mountain began to circulate throughout the Catholic world. It was said that here was one of the principal gates to Hell. Here you could see the souls of the damned suffering the tortures of eternal fire, except when Satan dragged them out to cool them in the surrounding ice "lest they become too inured to the fires of Hell."

In Iceland itself, this tale never made much headway. Volcanic eruptions and polar ice were far too common to beget legends. They were part of the daily struggle for existence.

Crossing the island from north to southwest is a veritable seething cauldron of more than 150 volcanoes, some of the most active in the world. The landscape is strewn with the weird ropy shapes of former lava flows, fissures, deserts of ash, boulders, gravel, lake-filled craters, and the like. Hekla, for instance, has erupted 23 times in recorded history. The last big eruption occurred twelve years ago and lasted on and off for six months. The eruption cloud rose to 90,000 feet, 60,000 feet above the tropopause, the boundary between the troposphere and the stratosphere. Ash fell like rain, turning the countryside from white to black within hours. Great rivers of fiery lava flowed down the snow-covered slopes engulfing farms and fields. Enormous red-hot blocks of lava hurtled across the dark blue sky, to land with a hiss in the snow as much as half a mile away.

Linked with the volcanic violence are earthquakes, which have repeatedly destroyed or damaged farmsteads and homes. Minor quakes, in fact, are so frequent that nobody pays any attention to them. Iceland also has almost every known kind of hot spring—acid, alkaline, and sulphurous—and boiling mud lakes, and a great geyser basin, the most famous geyser being Geysir, which gave its name to all similar hot springs.

The island is composed of horizontal layers of basalt dating from the Tertiary period. Most of it is a plateau ranging from 1,500 to 3,000 feet in elevation, above which rise mountains, the loftiest nearly 7,000 feet high. The western, northern, and eastern borders of the plateau are pierced by bays and spectacular fiords providing good sheltered harbors; otherwise this coast is wild, steep, and rocky. The southern coast, smooth, sandy, broken occasionally by rocky pinnacles and offshore shoals and bars, is practically harborless. It fringes the country's largest lowland—in all, lowlands comprise only about seven per cent of the total 39,700 square miles.

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About 5,000 square miles are covered by glaciers, one of which is the largest in Europe. The juxtaposition of fire and ice is nowhere more dramatic than in the occasional "glacier-bursts," massive and often disastrous floods resulting from volcanic activity beneath a glacier which causes the ice to melt suddenly. Iceland's glaciers have been diminishing in size during the past 75 years and are now smaller than at any time since the end of the seventeenth century.

Also diminishing is the amount and duration of Arctic drift ice brought in by the East Greenland Current. For centuries all of the northern ports were completely blocked by ice during the winter months. Since the 1880's, they have had much less; indeed, during the past four decades they have been *practically ice-free*.

THE WEATHER AND THE FARMER. Carefully-kept records of glaciers and drift ice lead authorities to believe that Iceland's climate is milder now than it has been for several hundred years. Certainly, it is not as cold as its name and its location a few miles south of the Arctic Circle would seem to indicate.

Northeasterly winds blowing in over a branch of the warm North Atlantic Drift considerably influence the west, south, and east coasts, giving them an average January temperature slightly above freezing or just about freezing, whereas in the interior it falls to below 21°F. July temperatures are mostly between 46° and 52°. Lying in the North Atlantic storm track, the weather is one of the world's most turbulent. All year round cyclones come in from the southwest, and in winter you can count on about six of them a month. The south normally gets well over 40 inches of precipitation a year; elsewhere the average is closer to 20. As for snow cover, it ranges from one or two months a year in the south to more than five in the north. And as for sunlight, it is all at a low angle, and hence reduced intensity, because of the latitude. In mid-winter darkness sets in about 2 p.m. and lasts until about 10 a.m.; from May to August the nights are almost as light as the days.

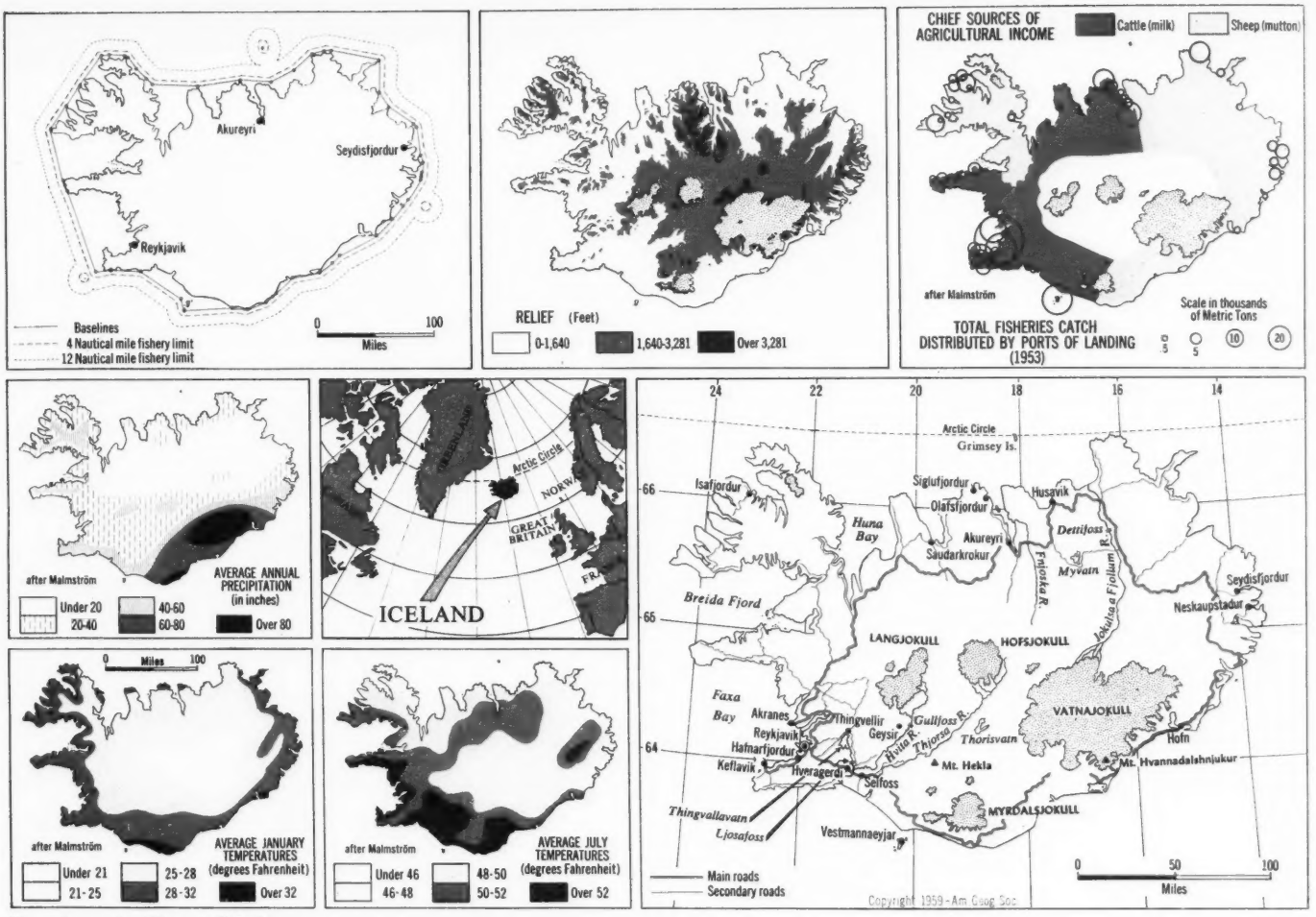
It is estimated that Iceland has no more than 7,000 square miles of arable land, of which less than three per cent is in cultivation. The interior uplands are generally barren, covered with lava, moraine, and driftsand. Originally there were large stands of birch forest, but most of this cover has been destroyed through grazing, cutting, and fires. Less than one half of one per cent of the island is now forested, and soil erosion presents a serious problem in places. The government has instituted a re-afforestation program using Norwegian pine and Alaskan spruce, which have proven themselves adaptable to the climate.

Although in the arable areas the loessial soil, mixed with volcanic ash, is fertile and easy to work, the growing of crops is not easy, primarily, of course, because of the shortness and coolness of the frost-free season, the cloudiness, and the weakness of the sun. Present grain production is restricted to barley and oats, grown chiefly on experimental farms. The main crops are hay, potatoes, and turnips. In the milder south, such vegetables as carrots, cabbages, cauliflower, lettuce, and spinach do fairly well, and it is here that cut flowers, tomatoes, cucumbers, grapes, and bananas are raised in greenhouses, some of them heated by water from nearby hot springs.

All in all, the farmers derive only ten per cent of their income from crops. Ninety per cent of it comes from livestock, particularly cattle and sheep. Fluid milk and mutton are the "best-sellers." In terms of dairy products, meat, and wool, Iceland is nearly self-sufficient; but most other food and fiber needs must be imported, along with lumber.

THE PEOPLE AND THEIR TOWNS. Icelandic history goes back over a thousand years, for it was settled by Norsemen late in the ninth century. When they decided to set up a government, in 930, they chose to form a republic, in which legislative and judiciary powers were given to chieftains who met in a general assembly, the *Althing*. This body, now constituted as the National Parliament, is believed to be the oldest legislative assembly in Europe.

Iceland passed under Norwegian control in 1262 and the following century it became a possession of Denmark. From the fifteenth to the end of the eighteenth centuries it suffered again and again from volcanic eruptions, pestilence, and famine, and by 1800 the population was less than two-thirds what it is estimated to have been seven centuries earlier. The modern literary, political, and economic revival of the country began early in the nineteenth century, and in 1918 it became independent. For some years after this it remained in



Maps drawn by Vincent Kotschar

a personal union with Denmark and the Danish government was responsible for foreign affairs. This union was finally abolished in 1944 when the Republic of Iceland was established—or, rather, re-established.

The population now numbers nearly 170,000. The 1957 birthrate was 28.7 per thousand, next to the highest in Europe, and the deathrate was 7.0, Europe's lowest, meaning a sizable increase per decade. The process of urbanization has been rapid in recent years. More than 70 per cent of the people now live in towns. This urban movement has resulted partly from a desire to flee the rigors of farm life—the population engaged in agriculture dropped by 40 per cent in the last 25 years; partly from centralization of the fishing industry in a few major ports; and partly from the growth of industries and commerce.

Reykjavik, a thriving modern city, sparkling clean because heated with water from hot springs, has attracted an overwhelming proportion of the nation's industry, and has 40 per cent of the total population; another ten per cent lives in the environs, and three of the largest towns (population between 3,000 and 9,000) are in the southwest, near Reykjavik. Akureyri in the north, the second largest town, is a fishing port with fairly diversified industry. Siglufjordur is the principal center of the herring fisheries. Isafjordur is the chief fishing town of the northwest, and Vestmannaeyjar the chief one on the south coast. The only important town located away from the coast is Selfoss (population 1,500) in the farming district of the southern plain.

Except for a 25-mile gap in the south, where quicksands, shifting streams, and glacier-bursts make road-building almost impossible, a motorable road circles the island, linking the larger towns. Outside of the Reykjavik area, however, all roads are surfaced with gravel and many are so narrow that it is well to slow to ten miles an hour when meeting

another car. Up to 15 per cent of the national budget has been spent in recent years to improve the roads. Communications between towns are further maintained by coastal steamers and, especially, by an excellent air network. There are no railroads.

THE RICHNESS OF THE SEAS. Few countries in the world are as economically dependent on fish as Iceland. Being a meeting place of warm and cool currents, the waters off the coasts are rich fishing grounds, particularly for cod, herring, redfish, haddock, and plaice. Herring and redfish usually are caught considerable distances offshore, cod and haddock both close to the coast and in deeper water, and plaice exclusively in offshore areas.

The problem of foreign fishermen off Iceland dates back to the end of the sixteenth century when they were first excluded by Denmark from waters within eight miles of the island. Toward the end of the nineteenth century English trawlers began to fish extensively for cod, and in time they were joined by the vessels of Germany, Belgium, and other countries, seeking cod and herring. In 1901 Britain and Denmark concluded a treaty whereby British and other foreign fishermen were forbidden to operate within three miles of the coast. Although the Icelanders, ever aware of the danger of overfishing, felt that the zone banned to foreigners should be broader, the treaty continued in force for 50 years.

Before World War I there were indications that the size of the average catch was declining, but then curtailment of fishing during the war permitted stocks to be replenished. The same thing happened before and during World War II. However, by 1948 Icelandic officials were convinced that unless extensive conservation measures were adopted the surrounding waters would again be overfished. A law was passed empowering the Minister of Fisheries to adopt necessary conservation measures in any waters covering Iceland's continental shelf. In 1952 a series of straight baselines were laid down about the island, connecting headlands, rocks, and offshore islands. From these lines a zone four miles wide was delimited in which all fishing by foreigners and trawling by Icelanders was prohibited. Normally about 300 foreign trawlers operate each year in Icelandic waters. The nation itself has some 40 trawlers; the majority of the catch is taken by fishermen in motor boats using hand lines.

Great Britain protested the new law and British fishing interests imposed a landing ban on Icelandic fish. Since about one-quarter of the country's fish exports went to Britain, the landing ban had serious economic consequences. Eventually new markets were found, particularly in eastern Europe. and although the British withdrew their ban in 1956, less than 10 per cent of Iceland's exports now go to Britain.

The 1952 restrictions soon led to a substantial increase in plaice stocks, but by 1956 the cod catch was starting to decline and Iceland's cod fishermen were reporting noticeable decreases in catch per unit effort. The British insisted that a drop in the cod catch was not in itself proof of overfishing, since the nature of the "year classes" of cod varies widely and peak years are inevitably followed by poorer ones. They offered to work out mutually agreeable conservation measures for Iceland's waters. But compromise proved to be impossible. The conservation of stocks was only one aspect of the problem; the Icelanders were also concerned with the need for future increases in the catch in order to keep pace with the growing population and its economic demands. In view of the fact that several nations have recently claimed twelve miles as the breadth of their territorial sea, the Icelanders felt justified in reserving for themselves the exclusive right to fish out to that distance.

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In September, 1958, the government extended its exclusive fisheries zone to twelve miles. Foreigners were forbidden to fish within twelve miles of the baselines, but Icelandic trawlers were permitted to operate in the four-to-twelve-mile zone at certain seasons of the year. There was no question of territorial waters involved; Iceland still claimed only a four-mile territorial sea. The British refused to recognize the extension of the fisheries limits and sent warships to protect their trawlers from arrest in the four-to-twelve-mile zone.

THE URGENCY OF FOREIGN TRADE. The importance of fishing to Iceland's economy is well illustrated by the fact that 90 to 95 per cent of its exports are fish and fish products. And the importance of exports, and imports, is obvious if one remembers how undiversified are its resources. There are no minerals of commercial value. Very little of the large hydroelectric potential of its numerous waterfalls has been used so far in industry. Although there are abundant peat deposits none are being developed, and sulphur, once an export item, is no longer mined. Pumice stone is used locally as insulating material. Lime from calcareous seashells in Faxa Bay is being employed in a new cement factory in Akranes. A plant near Reykjavik, extracting nitrogen from the atmosphere, produces enough fertilizer to supply the country's needs.

The largest industry is food processing: fish, milk, meat, and vegetables. Otherwise industry is confined mainly to the manufacture of metal goods and to consumer items for the domestic market, such as wearing apparel and footwear, and furniture. It should be noted here that the greatest single force in Iceland's commercial and industrial life is the cooperative movement. Cooperatives own and operate about half of the slaughter houses and freezing plants, and seven out of nine dairies. They handle most of the imports and exports, and operate many factories, two insurance companies, a large department store, a supermarket, a commercial college, a correspondence school, and a publishing firm specializing in the printing of ancient Icelandic sagas.

In order to buy the many items not available at home, such as mineral fuels and lubricants, textile yarns and fabrics, transportation equipment, ma-

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